



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
ATLANTA FEDERAL CENTER
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ATLANTA, GEORGIA 30303-8960

May 9, 2014

Lt. Colonel Chamberlayne
U.S. Army Corps of Engineers
Charleston District
Charleston Regulatory Office
69A Hagood Avenue
Charleston, South Carolina 29403

SUBJ: Haile Gold Mine Draft Environmental Impact Statement

Dear Sir:

Pursuant to Section 309 of the Clean Air Act (CAA) and Section 102(2) (C) of the National Environmental Policy Act (NEPA), the U.S. Environmental Protection Agency (EPA) Region 4 has completed our review of the Draft Environmental Impact Statement (DEIS), regarding Haile Gold Mine. As a cooperating agency, EPA appreciates the U.S. Army Corps of Engineers' (USACE's) coordination as lead agency with the EPA, the South Carolina Department of Health and Environmental Control (SCDHEC), and the Catawba Nation on the Haile Gold Mine EIS project. The purpose of this letter is to formally communicate the EPA's issues of concern with the Haile Gold Mine DEIS.

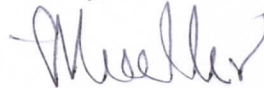
The proposed Haile Gold Mine is located three miles northeast of the Town of Kershaw in southern Lancaster County, South Carolina. Haile Gold Mine is approximately 17 miles southeast of the City of Lancaster, which is approximately 30 miles south of Charlotte, North Carolina. Haile Gold Mine, Inc., is a subsidiary of Romarco Minerals, Inc. (Romarco). Haile Gold Mine has applied for a Department of the Army (DA) permit from the Charleston District Office, to authorize the discharge of dredged or fill material into waters of the United States pursuant to Section 404 of the Clean Water Act (CWA) during the mining process. The project involves a federal action because the dredged or fill activities associated with gold mining in wetlands and other waters of the United States (Waters of the U.S.) require authorization through a DA permit under Section 404 of the CWA (33 U.S. Code §1344). The total area disturbed by the project is estimated to be 2,612 acres. Approximately 120.5 acres of wetlands and 26,461 linear feet of stream course would be disturbed during construction and operations of the mining project.

Based on our review of the DEIS, EPA Region 4 has assigned a rating of EC-2 (Environmental Concerns with additional information requested). Additional comments supporting the rating and our concerns are attached. We request that our concerns be fully addressed in the Final

Environmental Impact Statement (FEIS). Our primary concerns are associated with the following sections of the DEIS: regulatory issues; financial assurance; surface water and groundwater; wetland and stream mitigation; as well as post operational monitoring of groundwater and surface water discharges. We have attached detailed comments to better communicate our concerns with these issues (please see attached).

Thank you for the opportunity to comment on this project. We look forward to reviewing the FEIS. If you have any questions, please contact Larry Long of my staff at long.larry@epa.gov, 404-562-9460.

Sincerely,



Heinz Mueller, Chief
NEPA Program Office
Office of Environmental Accountability

Attachment

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EPA R4 Technical Comments
For
Haile Gold Mine DEIS
May 9, 2014

EPA Region 4 NEPA office along with our associate technical reviewers has reviewed the Haile Gold Mine DEIS and associated appendices, prepared by the U.S. Army Corps of Engineers, Charleston District office and their contractor CardnoEntrix. We provide these technical comments as a cooperating agency to better communicate our concerns with this project. Our concerns are as follows:

Regulatory Issues

Section 3.601, Regulatory Setting, Page 3.6-3, in the first bullet point, Clean Water Act Section 404 the paragraph states *"[T]he responsibility for administering Section 404 guidelines is shared and enforced by the USACE and the USEPA. The USEPA has delegated the majority of Section 404 administration to the USACE, including permit decisions and jurisdictional determinations; policy and guidance development; and enforcement of Section 404 provision. The USEPA continues to develop and interpret Section 404 criteria used in evaluating permits applications, identifies activities that are exempt from permitting, reviews and comments on individual permit applications, enforces Section 404 provisions, and has authority to veto USACE permits decisions."* Portions of this statement are factually incorrect. The authority to administer the Section 404 program is found in the CWA which also identifies the different roles each agency has in this process. The responsibility for administering the Section 404 program is shared and enforced by both agencies. USEPA and USACE do collaborate to create guidance and policies to ensure a balanced approach for the protections of jurisdictional waters, but do not delegate authority to each other. In addition to the activities listed above, the EPA also determines the scope of geographic jurisdiction, approves and oversees State and Tribal assumption, and has authority to prohibit, deny, or restrict the use of any area as a disposal site (Section 404(c)).

EPA recommends: This paragraph should be rewritten in the FEIS to reflect agency responsibility and authority as they are conveyed in the statutes and regulations.

Section 3.10.1, Regulatory Setting, Page 3.10-4, states *"[T]he regulatory setting for socioeconomic resources is limited to NEPA requirements for economic analysis and policies, and regulation related to environmental justice."* As presented this statement is factually misleading. NEPA requires an analysis of the Affected Area (40 CFR § 1502.15), which includes demographic data that also involves environmental justice issues. The Presidential Executive Order 12898 on Environmental Justice is not limited to NEPA and is a directive to all federal agencies to consider EJ in all programs affecting health or the environment. NEPA analysis provides a multi-media cross-program analysis, which may include other applicable regulations from other state and federal environmental regulations including, but not limited; to the Clean Air Act, the Clean Water Act, RCRA, and Superfund. Socioeconomic analysis in context with NEPA, establishes a baseline requirement. A more in-depth analysis may be performed and may be necessary for complex projects.

EPA recommends: This paragraph should be rewritten in the FEIS to describe the socioeconomic analysis methodology and remove the statement “The project analysis is *limited to NEPA*.”

NEPA regulations state that the lead agency (in this case USACE) shall identify the preferred alternative in the alternative section of the NEPA document (40 CFR § 1502.14(e)). According to 40 CFR § 1507.3(b), “[a]gency procedures shall comply with these regulations except where compliance would be inconsistent with statutory requirements...” However, a CWA 404 permit triggered this EIS and in this case USACE Section 404 NEPA Implementation Procedures for the Regulatory Program requirements (33CFR Part 325 Appendix B, Par. 9(5)) states that the applicants preferred alternative should be identified in the FEIS. For this reason, and due to the competing regulations as cited, the USACE should not be selecting a preferred alternative for this project in the DEIS.

EPA recommends: That a statement addressing this issue be presented in the FEIS in the appropriate section.

Section 4.1.7, Page 4.1-22 evaluates potential for facility failure and states that the project is “*designed to meet all applicable regulatory and engineering standards as codes...*” However, Appendix H, Section 2, Page 31, Figure 10, General Design of North Fork Diversion Inlet, depicts the design for the inlet structure having a free board of two feet. Design Standard No. 13, Embankment Dams (2012), states that minimum freeboard is three feet for this type of structure. Design Standard No. 13, Chapter 6 Freeboard, is an update by both the USACE, from the 2011 publication of Coastal Engineering Manual, and from the Bureaus of Reclamation Technical Service Center.

EPA recommends: That all designs for inlet, dams, and other engineered structures comply with the latest applicable engineering standard and that the standards be clearly posted and cross-referenced throughout the body of the report as well as the appendix. In addition to increasing the freeboard to the minimum of three feet, we also recommend that the average annual precipitation data used to calculate the height of freeboard be adjusted to include peak precipitation events from catastrophic events such as hurricanes, for which this geographic area is subject to.

Financial Assurance

As a result of past mining operations in South Carolina where hazardous material remained on the site once the mining operations ended, several of these closed mining sites in South Carolina were designated as Superfund sites. Section 4.1.6.3, Page 4.1-21 addresses financial assurance and bonding for this project. This section identifies some of the relevant reclamation and clean-up costs associated with mining and points out that the information presented for this report is a conceptual and therefore, are *estimates*. These costs are needed for the permitting agency to calculate bonding and clean-up cost in real time. The *real cost* will need to be addressed over time and refined as new technical data and financial information becomes available. As additional data is made available from the mining operations the total liabilities may be calculated. The data collected from the mining activities and used in the permitting process will need to be adjusted to reflect real cost and for the contingencies and unplanned events. Most of

the financial assurance requirements will be addressed in the state issued mining permit; however, other permits, both state and federal, should also address the potential cost.

EPA recommends: That financial assurance requirements should be written into the permits where appropriate, and reviewed by the permitting agency to reflect the new data from the changing conditions and to ensure that the permit represent the real cost and real time conditions of the mining operations. We also recommend that a long term permit monitoring plan be developed and that the monitoring plan be part of the FEIS and ROD. Overall, the data used to calculate the real cost of the mine closure are variables in all of the permitting actions and that a long term permit monitoring plan would ensure protection to human health and the environment.

Surface and Groundwater

Clean Water Act

The South Carolina Department of Health and Environmental Control (SCDHEC) has and will be issuing state permits for water, mining, air, and other media associated with mining activities. As the mining project progresses, the physical environment of the mine is subject to change as previously stated.

Surface Water & Surface Water Models

Two **key concerns** regarding the Haile Project's Water Quality Mass Load Modeling document pertain to: the ability to practically distinguish between the 'benign' and acid-generation overburden fractions; and (ii) the adequacy of the proposed liners for the acid-generating overburden fractions.

- (i) Table 1 – *Green Overburden*: There is a strong cost incentive to maximize the fraction (~80% at the mine's 12th year of operation – see Fig. 6) of the low-treatment cost *Green Overburden*. Considering that it will remain untreated, that the containing piles will not be lined, and considering the complex structural relations among the different overburden fractions, how would ROMARCO ensure that the *Green Overburden* ["Less than 0.2 % sulfide S or NNP > 0 (or NAG pH > 4.5)"] does not get mixed with fractions of *Yellow* or *Red Overburden*? How would quality control be implemented on a daily basis to ensure such separation? More detailed geologic information is needed to support the presumable ease of practically field-establishing the boundaries among the different overburden types.
- (ii) Section 3.3.5. More information about the type of geomembranes is needed. There is a concern that an 80 mil (sheet type) geomembrane might be accidentally perforated by jagged overburden fragments.

More information is needed as to the permeability of the scapolite layers and how effective will it be as a sub-liner, assuming that the geomembrane liner's integrity might be compromised due to inadvertent puncturing?

Section 3.3.5. The effective use of a saprolite cap as an effective 'oxygen inhibitor' is questionable, as long as its permeability is not low enough to prevent infiltration by direct rainfall and runoff.

EPA recommends: That a more detailed plan be presented in the FEIS, as to the separation of the overburden layers and the integrity and ability of the geomembranes to prevent punctures as well as, a contingency plan to addresses the process that will be undertaken in the event of a puncture or loss of liner integrity. More hydrological data is needed in reference to the scapolite layers permeability (K), and how it will be used in the sub-liner and caps. This type of information would be better summarized in the body of the report.

Ground Water

Section 3.1.2. (Virtual Resource Page 11): Groundwater systems should be portrayed graphically in relation to the geohydrologic units (i.e., coastal sands, saprolite, and various bedrock units) in a more realistic fashion than is presented in Fig. 2

Fig. 2 is too schematic. Surface drainage (Little Lynches, Haile Gold Mine Creek and tributaries of both) needs to be presented in a greater detail map that includes topographic contours and the various mining pits, leach pads, tailing piles and overburden piles.

Fig. 3 could be more representative for presenting measured mining pit *Acidity* values on a plot depicting the concentrations of iron, aluminum, manganese, and sulfate versus pH vs. concentration levels. Moreover, using a log scale for concentrations distorts the strong effect of water acidity on the concentration levels of the solutes. A linear concentration scale would be more representative and, if necessary, generate a separate plot for each of the constituents.

Section 3.3.4., Fig. 5, fails to identify all the Green Overburden Storage Areas addressed in the narrative.

Section 4.3.1, Page 4.3-1, Methods, is too generic when discussing models. This section needs to be more descriptive regarding the modeling software used and why this software was selected. It should be noted that modeling is a statistical analysis based on assumptions where many of the variables are held constant. There should also be a short description of how holding variables constant will affect the overall output of the model.

The last paragraph of this section (Page 4.3-2) starts off stating, "Based on the above assumptions," demonstrating the need for the report to clearly state what the assumptions are and how the modelers arrived at their assumptions.

Section 4.3.1.1, Groundwater Models, Field Basis for the Model and Model Evolution, states, "Three successive groundwater flow models were developed..." but does not provide a description of the modeling software or why the model was selected. A later section in the report does state the modeling software names and the decision parameter for which the models were selected. This information should be presented early in the section so that reviewers can make evaluation decisions.

EPA recommends: The above groundwater issues should be clarified and addressed in the FEIS.

Wetlands and Stream Mitigation

The applicant proposes permittee-responsible mitigation is comprised of 3 sites. The Rainbow Ranch Site is 698 acres containing 19,714 LF of streams and 28.11 acres of wetlands. The Cooks Mountain Site is 1,131.8 acres, containing 28,292 LF of streams, 10,289 LF of Wateree River shoreline and 485.1 acres of wetlands. The Goodwill Plantation Site is 2,559 acres, containing 30,706 LF of streams, 29,560 LF of Wateree River shoreline and 1,048.1 acres of wetlands. The shoreline of the Wateree River is not included in stream linear footage calculations as preservation because without control of both shorelines, preservation cannot be ensured. The Mitigation Plan contemplates that these sites will be preserved and managed under SCDNR's Heritage Trust Program.

Overall, we find that the sites as proposed may have potential to mitigate for impacts to Waters of the United States. This is contingent on the applicant effectively addressing the following comments and being able to demonstrate the preservation or functional lift of the wetlands and streams included in the proposal.

The applicant's mitigation plan is solely preservation. The 2008 Mitigation Rule, 33 CFR Part 332, identifies a preferred hierarchy of allowable compensatory mitigation methods, starting with restoration as the first option, followed by enhancement, establishment, "and in certain circumstances preservation." 33 CFR § 332.3(a) (2). The 2008 Mitigation Rule also discusses the types of mitigation including mitigation bank credits, in-lieu fee program credits, and various types of permittee responsible options, noting that in general the required compensatory mitigation should be within the same watershed. 33 CFR § 332.3(b). Within the 2008 Mitigation Rule, preservation as compensatory mitigation may be authorized, but the Rule sets out five very specific requirements that must be met before preservation will be considered. 33 CFR §332.3(h). As with all mitigation authorized under the 2008 Mitigation Rule, preservation is tied to being within the same watershed. To paraphrase:

- 1) The resources to be preserved provide important physical, chemical, or biological functions for the watershed;
- 2) The resources to be preserved contribute significantly to the ecological sustainability of the watershed. In determining the contribution of those resources to the ecological sustainability of the watershed, the district engineer must use appropriate quantitative assessment tools, where available;
- 3) Preservation is determined by the district engineer to be appropriate and practicable;
- 4) The resources are under threat of destruction or adverse modifications;
- 5) The preserved site will be permanently protected through an appropriate real estate or other legal instrument (e.g., easement, title transfer to state resource agency or land trust).

While EPA believes the proposed mitigation meets many aspects of these requirements, to make a determination on the appropriateness of preservation as mitigation, the district engineer must determine, among other requirements, how the resources will contribute significantly to the ecological sustainability of the watershed. Further, the 2008 Mitigation Rule states:

Where preservation is used to provide compensatory mitigation, to the extent appropriate and practicable the preservation shall be done in conjunction with aquatic resource restoration, establishment, and/or enhancement activities. This requirement may be waived by the district engineer where preservation has been identified as a high priority using a watershed approach described in paragraph (c) of this section, but compensation ratios shall be higher.

Due to the majority of the mitigation being out of the impact watershed, the EPA believes the preservation should be done in conjunction with restoration projects. The EPA understands that restoration projects are planned by the South Carolina Department of Natural Resources after the lands are transferred to the Heritage Trust Program. However, to fully evaluate the mitigation plan, the EPA requests the 12 elements specified in the mitigation rule including: objectives, site selection, site protection instrument, baseline information, determination of credits, mitigation work plan, maintenance plan, performance standards, monitoring requirements, long-term management plan, adaptive management plan, and financial assurances.

While the EPA believes the mitigation plan may be adequate to compensate for all unavoidable impacts, the predicted indirect impacts are uncertain in severity or scope. A robust monitoring plan should be implemented to ensure the true impacts are documented and mitigated. If monitoring reveals that impacts are greater than expected, additional mitigation review would be required.

In terms of credits, EPA believes that the plan could adequately mitigate for the impacts of the project. However, in the Draft EIS, credit calculations were not provided. In meetings with USACE, the EPA was informed that the Charleston Guidelines for Preparing a Compensatory Mitigation Plan was never intended to be used in large projects and was deemed inappropriate for the large impacts of this project. The USACE was also unable to find a suitable functional assessment tool to quantify credits. Therefore, the USACE proposes to quantify impacts and mitigation using ratios. The 2008 Mitigation Rule allows for this, stating:

In cases where appropriate functional or condition assessment methods or other suitable metrics are available, these methods should be used where practicable to determine how much compensatory mitigation is required. If a functional or condition assessment or other suitable metric is not used, a minimum one-to-one acreage or linear foot compensation ratio must be used.

The district engineer must require a mitigation ratio greater than one-to-one where necessary to account for the method of compensatory mitigation (e.g., preservation), the likelihood of success, differences between the functions lost at the impact site and the functions expected to be produced by the compensatory mitigation project, temporal losses of aquatic resource functions, the difficulty of restoring or establishing the desired

aquatic resource type and functions, and/or the distance between the affected aquatic resource and the compensation site. The rationale for the required replacement ratio must be documented in the administrative record for the permit action.

Through meetings with the USACE, other resource agencies, and the applicant, the EPA has voiced the above concerns and has been assured that they will all be addressed and included in the Final EIS and Record of Decision.

EPA recommends: The ratios used and the rationale for the required ratios to be included in the Final EIS. EPA believes that as additional data is collected during the life of the mine the adequacy of the proposed compensatory mitigation should be re-evaluated. EPA recommends that an adaptive management approach that would allow for additional mitigation for unexpected indirect impacts be included as a condition of any permit issuance and be present in the Record of Decision (ROD).

Post Operational Monitoring

Section 4.3.1.4, Post Closure Water Quality Models, Page 4.3-10, speaks to the development of a mass load model for groundwater with the purpose of predicting the transport of metals and other constituents into surface waters. To accurately achieve real time monitoring, the monitoring data will need to be collected as the mining process evolves. For this reason, real time monitoring needs to be conducted throughout the mining life of the project including pre, post and active mining. To evaluate the changing environmental conditions of the mine, the monitoring results need to be provided to SCDHEC, USACE and EPA for evaluation of the monitoring data.

EPA recommends: As more data is collected over time to fully characterize the waste rock and tailings, the International Network for Acid Prevention's (INAP) guidance should be used so that the characterization is consistent with international standards.

The Global Acid Rock Drainage (GARD) guide encourages acid rock drainage testing for the life of mines using static and kinetic testing. At present, it is unclear the extent of metal mobility at the proposed mine and whether the designs and proposed treatment will be able to mitigate adverse metal mobility.

EPA recommends: That the NPDES permits be caveated to address the changing conditions during and post mining operations that reflect state and federal water quality standards, as well as, how exceedances of the permit will be enforced. EPA request that copies of permits and permit renewals be forwarded to the USACE and EPA Region 4 Water Division for their records.

Report Format

Several different technical issues are discussed in greater detail in the appendices than in the body of the report. This may lead the reader to surmise that the report did not go into great enough depth, leaving a false impression of the report analysis. According to 40 CFR § 1502.18, appendices to NEPA documents shall: *Consist of material prepared in connection with an environmental impact statement (as distinct from material which is not so prepared and which is*

incorporated by reference (§ 1502.21)). The general understanding and intent of the regulation is for the appendices to provide references that are connected by cross-referencing.

For example, throughout the report and including the appendices, there are several descriptions of the tailing ponds (overburden storage areas) that differ from each other. We recommend one formal description in the body of the report and that description be cross referenced throughout the report and appendices to clearly indicate which of the eight ponds will be filled, partially filled and those that will become lakes.

EPA recommends: To strengthen this report certain technical aspects or details that is provided in the appendices should be summarized in the body of the report. Both the body of the report and the appendices should be better cross-referenced so that the reader does not have to hunt or assume that those details are not part of the analysis.